

Amendments to the Specification

Please replace the paragraph on page 1, lines 18-25 with the following replacement paragraph.

A1
One way to decrease the cost of telephone service is to limit the telephone calls that can be made by controlling outbound access to the public telephone system, and in particular, to the local exchange. This can be accomplished by connecting a call restriction device to the telephone line of the telephone. Alternatively, a call restriction device can be incorporated inside the telephone. These call restriction devices operate on the principle that the costs associated with an unauthorized toll or other call can be prevented by blocking the call when the it is dialed.

Please replace the paragraph running from page 3, line 22 to page 4, line 6 with the following replacement paragraph.

A2
The apparatus comprises a microcontroller that has nonvolatile memory for storing data (e.g., restricted telephone numbers, time restrictions and restriction mode) and the microcontroller programming. The apparatus further comprises a DTMF transceiver that converts DTMF dialing signals from the telephone being monitored into digital signals that are processed by the microcontroller. The call restriction device also communicates with a computer via the DTMF transceiver and the telephone line. In a line monitoring mode, the microcontroller compares digital signals representing a dialed number to restricted numbers stored in nonvolatile memory and, if the call is restricted, activates the DTMF transceiver to transmit a selected tone or tones (e.g., DTMF signals) that inhibits future operation until the telephone is placed on hook. In a programming mode, the microcontroller receives signals representing call restrictions, originating from a remote computer (e.g., an IVR system or a

A2
correct personal computer), and stores them in nonvolatile memory.

Please replace the paragraph running from page 6, line 20 to page 7, line 6 with the following replacement paragraph.

A3
In accordance with a further aspect of the preferred embodiment, the IVR system is programmed to remain silent in response to receipt of a predetermined message. In this case, a personal computer having a voice modem is connected to the telephone line of the telephone on which the call restrictor is connected. The personal computer is loaded with software for dialing up the access number of the IVR system; transmitting a first message onto the telephone line so that the IVR system will remain silent; transmitting a second message (including an authorization code) onto the telephone line for placing the call restriction device in a programmable mode; and then sending additional messages, based on operator input of desired call restrictions, that program the call restriction device. When programming of the call restriction device has been completed, the connection between the personal computer and the IVR system is terminated. Preferably, software for programming a call restriction device can be downloaded to the personal computer from a secure web server on the Internet. The use of a personal computer has the advantage that the call restrictions can be stored in memory and are thus readily recallable and modifiable by the PC user.

Please replace the paragraph on page 7, lines 12-17 with the following replacement paragraph.

A4
In accordance with another preferred embodiment of the invention, the IVR system is replaced by a personal computer having a voice modem. The personal computer is programmed with software for placing call restriction data in the format required by the call

A4 restriction device and for communicating with the call restriction device using a protocol recognized by the call restriction device, operated by a human attendant.

Please replace the paragraph running from page 9, line 28 to page 10, line 16 with the following replacement paragraph.

AS In accordance with the preferred embodiment, to program the call restriction device 8 (see FIG. 1), the user of telephone 2 must access the call restriction device via the IVR system 14. When the telephone user inputs his authorization code, i.e., PIN, that authorization code is received by the IVR system 14 and ~~retransmitted by the IVR system 14 to~~ the call restriction device 8 for validation. If the submitted authorization code is valid, the call restriction device then transmits a predetermined message to the IVR system to indicate that it is ready to be programmed, i.e., ready to receive call restriction data in the proper format. The IVR system 14 then prompts the telephone user to enter the call restrictions, including call restriction codes (i.e., allowed, restricted, time-limited, etc.), area codes, country codes, telephone numbers, and time limits. These inputs are received and processed by the IVR system 14. The IVR system 14 then transmits the call restrictions to the call restriction device 8 along with additional information. The call restriction device 8 then uses the transmitted information to program its nonvolatile memory. When the telephone user finishes this process, he/she sets the telephone on hook. The IVR system is disconnected and power is cut off to the call restriction device 8. The call restriction device 8 is then ready to monitor the telephone line and restrict outgoing telephone calls.

Please replace the paragraph running from page 10, line 24 to page 11, line 9 with the following replacement paragraph.

A6
Referring to FIG. 2, the preferred embodiment comprises circuitry for detecting the drop in voltage due to the telephone being off hook. In particular, Zener diodes D3 and D15 detect this voltage drop on the telephone line (labeled LINE in FIG. 2) and output a stabilized voltage at the collector of transistor Q1 to feed the processing and communications components, i.e., the microcontroller and DTMF transceiver chips, described in more detail below. When the associated telephone is returned to an on hook condition, this circuit cuts out the voltage from the processing and communications components and loads the telephone line with negligible power, as allowed by the governing standards. The circuit comprising capacitors C23 and C24, and diodes D11, D12 and D19 detects the ringing signal when it arrives and, by use of FET Q12, inhibits the loading of the digital circuit by the ring signal when voltage is temporarily low. The communications signal on the telephone line is extracted by capacitor C23 and supplied to the line labeled DTMFIN in FIG. 2 (which is the input to the receiver portion of the DTMF ~~receiver~~ transceiver 18 in FIG. 3).

Please replace the paragraph on page 12, lines 13-24 with the following replacement paragraph.

A7
In accordance with yet another aspect of the preferred embodiment depicted in FIG. 3, the call restriction device further comprises a circuit for resuming interference on the telephone line following a telephone off hook condition of insufficient duration. The circuit composed of capacitor C22, resistors R49 and R50, and diode D8 is a memory that remembers whether the telephone line was being interfered with prior to the occurrence of a telephone on hook condition. By using a short hook flash that takes the power off the call

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could

restriction circuits, the call restriction device is initialized, but if the on hook condition is too brief, the local telephone exchange will ~~have~~ not disconnected the line, so that the call restriction device can be bypassed. By this memory circuit, the call restriction device can continue to disturb the line unless the telephone was on hook long enough to ensure that the line was disconnected.

Please replace the paragraph running from page 13, line 25 to page 14, line 15 with the following replacement paragraph.

A8

In accordance with another preferred embodiment of the invention, the IVR system 14 (see FIG. 1) can be replaced by a personal computer having a voice modem. The personal computer is programmed with software for placing call restriction data in the format required by the call restriction device and for communicating with the call restriction device using a protocol recognized by the call restriction device. The computer operator interacts with the telephone user to obtain the telephone user's authorization code and then sends signals representing the authorization code to the call restriction device. If the authorization code is valid, i.e., if the telephone user's authorization code matches the authorization code required by the call restriction device, then the call restriction device will respond with a message that it is ready to be programmed. The computer operator may then interact with the telephone user to obtain call restriction data. The call restriction data may include telephone numbers or area codes to which calls are prohibited, telephone numbers or area codes to which calls are limited in duration, telephone numbers or area codes to which calls are allowed, etc. The call restriction data is packaged in the format required by the call restriction device and sent from the personal computer to the call restriction device by the computer operator. The interaction

Appl. No. 10/025,646
Amdt. dated October 24, 2003
Reply to Office Action dated April 25, 2003

Attorney Docket No. AER-P-2

A8
only
between the computer operator and the telephone user can then cease and the call restriction
device is ready for use.
